31/03/11

FITTING INSTRUCTIONS
FOR

MFK 371CS/4 & MFK 371CS/5

CHEVY V8 PETROL WITH STEEL FLYWHEEL TO LAND CRUISER 4 & 5 SPEED TRANSMISSIONS

Thank you for purchasing a product manufactured by Marks 4WD Adaptors. The following instructions are intended as a guide. We recommend that you purchase a service manual pertaining to your vehicle for specific torque values, wiring diagrams and other related information.
The bellhousing supplied in this kit has been designed to accept all the standard 2F petrol components. To fit this kit to a Land cruiser previously equipped with a F155 petrol, H or 2H diesel engine some extra parts need to be acquired, second hand or new. The Land cruiser clutch is used with this kit.
NOTE: The FJ and HJ series Land cruiser with a single transmission mount may require the early model driver side bellhousing mounting to fit the slave cylinder.

When replacing the pre 1980 H 3.6 litre 6-cylinder, diesel engine the following parts are required:
1. 2F petrol thrust bearing, carrier, and clips.

2. 2F petrol clutch fork and pivot.
NOTE: If a cast iron fork is used, the pivot length is 27.5mm. If a pressed metal fork is used the pivot length is 37.5mm.

3. Clutch fork boot to suit the fork you have purchased.

4. 2F-bellhousing breather plug (fitted to the opposite side of clutch fork boot).

5. 2F Slave cylinder and push rod to suit the clutch fork you have purchased.

6. Land Cruiser 2F or 3F pressure plate.

7. 2F left and right bellhousing mounts including rubbers, chassis brackets and bolts as well as bolts to fasten them to the chassis rails.

When replacing the F155 3.9 litre 6-cylinder, petrol engine the following parts are required:

1. 2F or 3F clutch pressure plate.

When replacing the 2H 4 litre 6-cylinder diesel engine the following parts may be required:

1. 2F/3F petrol clutch fork and pivot.

NOTE: In some models the 2H fork can be used. The distance between the pivot centre and the gearbox centre is slightly shorter on this model. Although this difference exists, the 2H fork can be used without any problems.

Starter Motor Identification

The flexplate stiffener in the kit will only suit the GM flexplate fitted with a 168 tooth ring gear. When fitting the Chevy V8 you must use the starter motor that suits the above, flex plate.

If your starter motor does not match, you can simply change the front housing on the starter motor.

Due to various Chevy starter motor sizes, a small portion may have to be ground out of the starter motor, locating hole in the clutch cover plate.

Engine Identification

Externally balanced engines can be identified as having counterweights on both, the harmonic balancer, the flywheel, or the flex plate. Chevy engines that are externally balanced include, 400 CID small block, all big block and all post 1986 engines.

Post 1986 small block engines also have a different rear crankshaft bolt pattern. The easiest way to identify a post 1986 engine is by the rear main seal. Post 1986 engines have a one piece rear main seal that is visible from the rear of the engine, while the earlier engines have a two piece internal rear main seal.

Engine Removal

1. Remove bonnet from vehicle and tie back hinges.

2. Disconnect and label all the hoses and wiring attached to the old engine.

3. If you are using one of our mount and drive systems on the front of your engine, remove the air-conditioning compressor and power steering pump from the engine but **DO NOT** disconnect the hoses.

4. If you are not using the Toyota air-conditioning compressor and power steering pump remove them and disconnect the hoses (if fitted).

5. Remove the complete exhaust system from the vehicle.

6. Drain the radiator and engine of all fluids.

7. Remove the radiator from the vehicle.

8. If you plan to use a different grade fuel, drain the fuel tank and fuel lines.

9. Unbolt the slave cylinder from the original bellhousing.

10. Support the transmission using jack stands or remove it completely.

11. Undo the four bolts holding the gearbox to the bellhousing.

12. Undo the engine mounting bolts and lift the engine to remove the rubbers.

13. Undo the bolts holding the bellhousing side mounts if fitted.

14. Remove the complete engine assembly. Do not discard the old engine, as some parts are required for the conversion.
15. Remove the oil pressure and water temperature senders from the Toyota engine.

16. Remove the engine chassis mounts from the chassis by drilling or grinding the heads off the rivets, then drill, or drift the remainder of the rivets through the chassis rails.

Transmission and Bellhousing Preparation

1. Remove the flywheel cover plate.

2. Remove the thrust bearing and clutch fork.

3. Remove the clutch.

4. Remove the flywheel.

5. Remove the bellhousing from the transmission.

6. Remove the clutch fork pivot from the bellhousing.

7. Remove the two 12-mm dowels between the bellhousing and gearbox.

8. Remove from the bellhousing the clutch fork boot and breather boot if fitted.

SETTING UP THE NEW BELL HOUSING.

9. Fit the clutch fork pivot to the new bellhousing.

10. Fit the two 12-mm dowels to the rear of the new bellhousing.

WARNING

11. Failing to fit the dowels will result in transmission damage and or incorrect clutch operation.

12. Fit the new bellhousing to the transmission using the original bellhousing bolts.

Vehicles previously equipped with a F155 petrol or H diesel.

The 2F-bellhousing side mounts you have purchased will need to be set up on your chassis.

This is done as follows:

13. Cut the front lug off both bellhousing mounts to fit them into the recesses at the side of the bellhousing. **NOTE:** The right hand mount supports the slave cylinder, loose fit the slave cylinder as you tighten the mounting bolts, alignment of the slave cylinder bolts will be much easier.

14. Bolt the bellhousing mounts to the new bellhousing.

15. Fit the right hand bellhousing chassis bracket to the chassis. There should be some holes already drilled to accept them.

16. Use high tensile bolts to secure the bracket to the chassis. **NOTE:** If you are unsure of the mounting position on the chassis, fit the complete engine and transmission assembly into the vehicle. Set the position using the front and rear drive shafts along with the gear lever position to find the correct position and then mark the chassis.

17. Mark the left-hand chassis for the new mounting position.

18. Remove the engine.

19. Drill the right hand chassis rail and secure the bracket with high tensile bolts.

20. Drill the left-hand chassis rail. **NOTE:** The left hand mounting sits on top of the chassis, to drill the hole you may need to cut a large hole in the floor pan to gain access, this could be plugged with a rubber grommet.

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21. Make sure that the bellhousing mounting rubbers you have are in good condition.

22. Fit the clutch fork, and thrust bearing to the bellhousing. **NOTE:** Apply some fresh grease to the grease groove inside the thrust-bearing carrier.

23. Fit the clutch fork boot, and bellhousing breather boot.

24. Fit the thrust carrier retaining clips.

25. **Early 4-Speed models.** Fit the slave cylinder and push rod to the bellhousing side-mounting bracket and bellhousing, using the original Toyota bolts.
26. **Late 4-Speed Split T/Case and Early 5-Speed Models.** Fit the slave cylinder and push rod to the bellhousing. Use the original Toyota front bolt, with the 28.5-mm spacer (MFC1169), the M10x1.25x80 bolt (MFC1196) and spring washer (MFC475) in the rear.

Engine Mounting installation

The most accurate way of determining the position of the new engine chassis mounts is to trial fit the engine.

27. Fit the new engine mounting rubbers to the engine block using the new bolts, and washers supplied in the kit.

28. Loosely fit the new chassis brackets to the engine rubbers using the bolts, nuts and washers supplied in the kit.

29. The smaller bracket is fitted to the left hand, (passengers side) of the vehicle and the larger bracket to the right hand, (drivers side).

30. Make sure that the two dowels are fitted to the rear of the GM engine.

31. Guide the engine into place and secure it using only 2 of the side bolts supplied in the kit.

32. Lower the engine so that the top flange on the chassis bracket sits on top of the chassis rail. **NOTE:** Some models may require a new section to be cut out of the top flange to fit around the chassis rivet.

33. When satisfied with the engines positioning tack weld or bolt the brackets to the chassis.

NOTE: Some chassis rails are not perfectly flat under the top flange. For these installations, the top flange may need to be heated with an oxy torch and flattened down to the chassis before welding is completed.

34. Remove the engine and complete the welding or bolting of the chassis brackets.

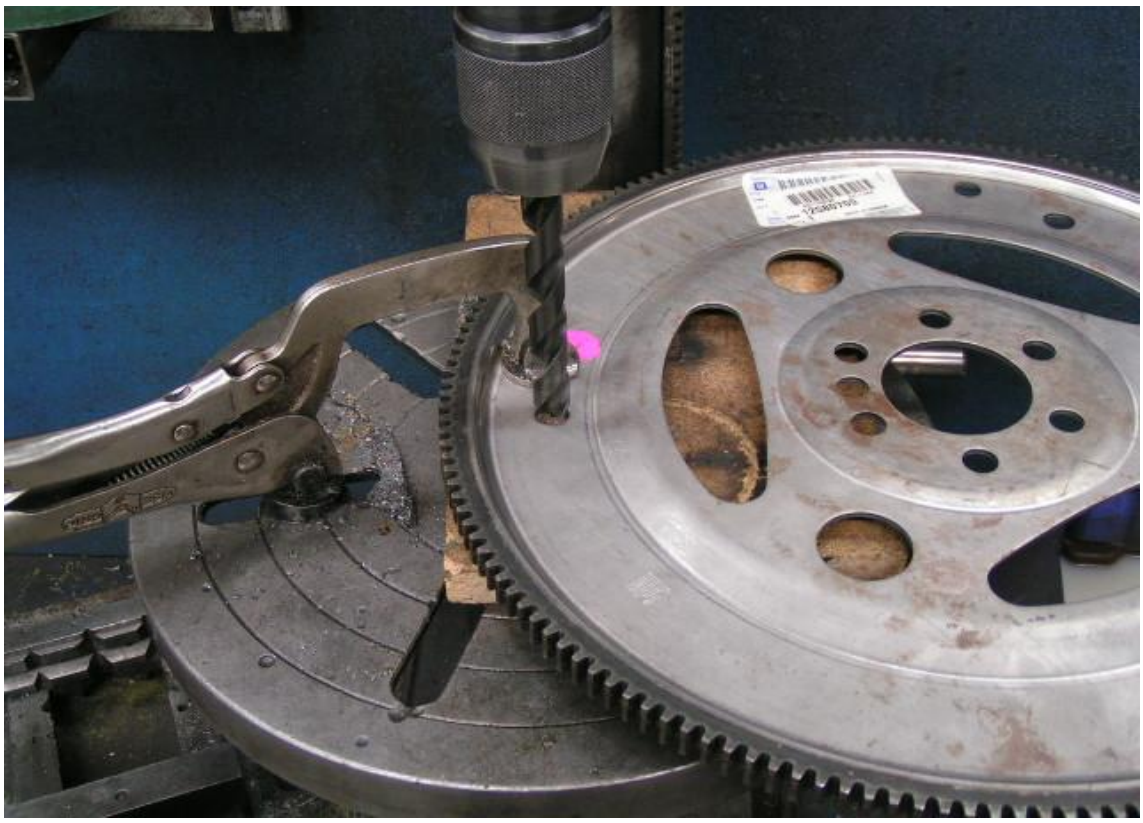
35. Paint the chassis brackets and welded area.

Final Engine Preparation

36. Fit the flexplate to the back of the new flexplate stiffener. ***Note:*** you may need to drill one of the converter bolt holes out to suit the bolts supplied in the kit. See the following photos.

37. Use the aligning bung supplied in the kit, this will ensure perfect alignment between the two parts.

38. Secure them using the bolts and washers supplied in the kit. Check the packing list for clarification of the bolts used. Torque the M10 bolts to 61nm/45ftlb.




LOCTITE
262
THREADLOCKER
SUPER
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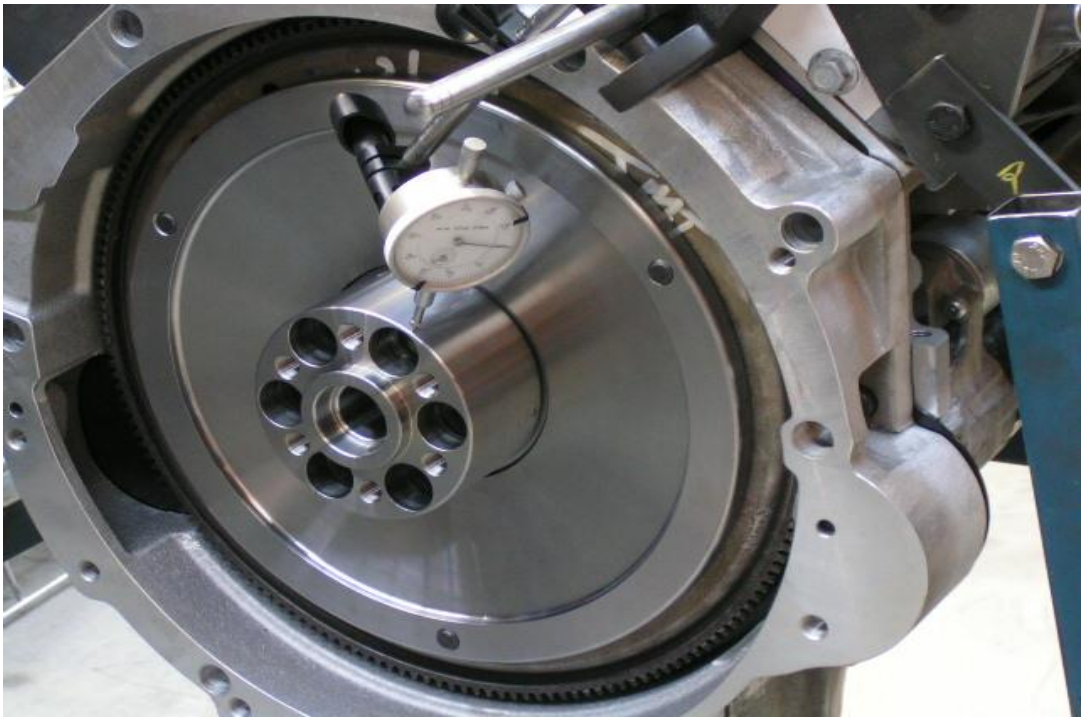
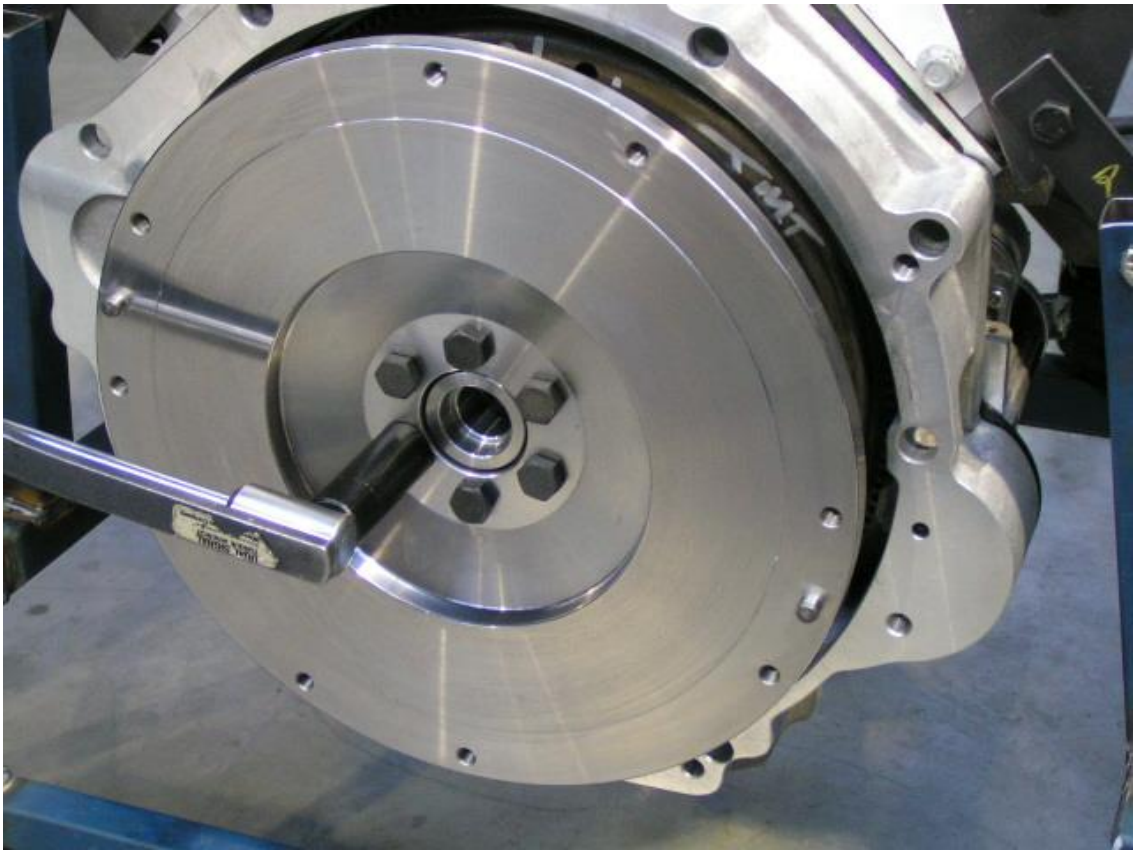
39. Fit the flexplate assembly to the crankshaft with the crankshaft adaptor and secure them using the 7/16”unf socket head cap screws supplied. Torque the 7/16” socket head cap screws to 88nm/64ftlb.

40. Check the crank adaptor for run out, this should not be any more than 0.05mm. If it is you should try to correct it by rotating the adaptor and trying again. See the following photos. ***Note:*** The following photos are not from this specific conversion, however the parts and torque settings are the same.



41. Fit the new spigot bearing (part No. 6202) into the crankshaft adaptor. Use the flexplate aligning tool a drift, use a soft hammer to drive the bearing in until is sits flush in the bore. **NOTE:** The bearing is pre packed with grease, and fitted with rubber seals, the rubber seals should not be removed.
42. Fit the new flywheel to the crankshaft adaptor and secure it using the new bolts supplied. **NOTE:** Torque the bolts to 95nm/70ftlb and use loctite on bolts.



43. Fit the clutch assembly to the flywheel and secure it using the original 2F, or 3F bolts. Align the clutch plate using a suitable clutch aligning tool. ***NOTE:*** The original bolts should fit without modification but it is a good idea to double check them in the new flywheel prior to fitting the clutch.

Engine Installation

1. Put the transmission into 4th gear and the transfer case into high range.

2. Raise one of the rear wheels off the ground.

3. Guide the engine into place and at the same time rock the back wheel backward and forward to help align the clutch spline.

4. When aligned secure the engine using the bolts, spring washers and flat washers supplied in the kit.

5. Guide the engine rubbers over the chassis brackets and secure them with the bolts, nuts, and washers supplied in the kit.

6. Fit the clutch hydraulic pipe.

7. Bleed the clutch hydraulics and check the clutch operation. **NOTE:** This can easily be done while the back wheel is off the ground. Make sure the transmission is still in gear, depress the clutch pedal, the rear wheel should turn, release the pedal, and the wheel should stop. If all is well proceed if not rectify the problem.

8. Fit the new flywheel cover plate to the bellhousing using the original bolts and washers. **NOTE:** Check the clearance around the starter motor in some cases the cover may need to be filled or ground to fit. Seal around the cover plate using silastic.

7. Fit the water temperature sender using the adaptor supplied in the kit.

8. Fit the oil pressure sender using the adaptor supplied.

9. Fit the heater hoses.

10. Fit the top radiator hose as per mount and drive kit.

11. Fit the bottom radiator hose as per mount and drive kit.

12. Fit the power steering pump, air-conditioning compressor, and the alternator using the instructions supplied with the mount and drive kit. 2F kit Part No. MFK1175 and 3F kit Part No. MFK1170. **NOTE:** The air conditioning bracket is fitted where the manual fuel pump is located on early model Chevy engines. These installations will require the use of an electric fuel pump.

13. If you have purchased a tachometer interface kit part No. MFK1165 wire it up as per the instructions supplied.

13. Complete the wiring.

14. Complete the exhaust system. **NOTE:** Heat shields must be fitted to the exhaust system to prevent excessive heating of the engine mounting rubbers. Failure to do so will cause premature engine mounting failure.

15. Check all fluid levels and fill fuel tank with required grade of fuel.

16. Double check all mounting bolts are tight.

17. Start the engine and check for-

    Fuel leaks.

    Oil leaks.

    Water leaks.

Exhaust leaks.

Allow the engine to warm up and recheck above.

18. Refit the bonnet.

19. Road test the vehicle for 3 to 5 kms.

20. Check for leaks.

The components supplied in the kit are designed for specific type conversions. Modifications to any components without the written consent from Marks 4WD Adaptors will void any possible warranty or return privileges. Should you have any further questions that are not covered in the instruction sheet, please contact our sales department for assistance.

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